

Appln. No. Serial No. 10/781,528
Amdt. Dated 9/19/05
First Response in Appln, Reply to Office Action of 04/19/2005
Page 2 of 13

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Cancelled).
2. (Currently Amended) ~~The double pipe of claim 1, wherein:~~ A double pipe comprising:
an outer pipe; and
an inner pipe having a spiral shape configured to be held by an inner circumferential face of the outer pipe,
wherein:
the diameter of the spiral of the inner pipe is equal to or less than an inner diameter of the outer pipe; and
the outer pipe has a curved part with a flattened cross-section so that the inner pipe contacts an inner circumferential face of the curved part and is fixedly held by the curved part ~~is curved to hold the inner pipe at each curved part.~~
3. (Currently Amended) ~~The double pipe of claim 1, wherein:~~ A double pipe comprising:
an outer pipe; and

Appln. No. Serial No. 10/781,528
Amdt. Dated 9/19/05
First Response in Appln, Reply to Office Action of 04/19/2005
Page 3 of 13

an inner pipe having a spiral shape configured to be held by an inner circumferential face of the outer pipe,

wherein:

the diameter of the spiral of the inner pipe is equal to or less than an inner diameter of the outer pipe; and

the outer pipe is locally or wholly crushed inwardly in a diametrical direction to hold the inner pipe at each crushed part.

4. (Cancelled).

5. (Withdrawn) A method of manufacturing a double pipe having an outer pipe and an inner pipe, comprising:

forming the inner pipe having a spiral shape with a diameter equal to or less than an inner diameter of the outer pipe;

inserting the spiral inner pipe into the outer pipe; and

curving the outer pipe into a predetermined shape so that the inner pipe is fixed to the outer pipe at each curve.

6. (Withdrawn) A method of manufacturing a double pipe having an outer pipe and an inner pipe, comprising:

Appln. No. Serial No. 10/781,528
Amdt. Dated 9/19/05
First Response in Appln, Reply to Office Action of 04/19/2005
Page 4 of 13

forming the inner pipe having a spiral shape with a diameter equal to or less than an inner diameter of the outer pipe;

inserting the spiral inner pipe into the outer pipe; and

locally or wholly deforming the outer pipe inwardly so that the inner pipe is fixed to the outer pipe at each deformation of the outer pipe.

7. (Withdrawn) A method of manufacturing a double pipe having an outer pipe and an inner pipe, comprising:

forming the inner pipe having a spiral shape with a diameter greater than an inner diameter of the outer pipe;

inserting the inner pipe into the outer pipe while exerting force on the inner pipe to reduce the outer diameter of the spiral of the inner pipe to be less than the inner diameter of the outer pipe; and

stopping the exertion of the force so that a resilient restoring force of the inner pipe fixes the outer pipe and inner pipe to each other.

8. (Withdrawn) The method of claim 5, further comprising:

spirally winding two straight pipes around each other and releasing the wound two pipes from each other so that the released two pipes may each serve as the spiral inner pipe.

9. (Withdrawn) The method of claim 6, further comprising:

Appln. No. Serial No. 10/781,528
Amdt. Dated 9/19/05
First Response in Appln, Reply to Office Action of 04/19/2005
Page 5 of 13

spirally winding two straight pipes around each other and releasing the wound two pipes from each other so that the released two pipes may each serve as the spiral inner pipe.

10. (Withdrawn) The method of claim 7, further comprising:

spirally winding two straight pipes around each other and releasing the wound two pipes from each other so that the released two pipes may each serve as the spiral inner pipe.

11. (Withdrawn) The method of claim 5, further comprising:

spirally winding a straight pipe around a columnar core and releasing the wound pipe from the columnar core so that the released pipe may serve as the spiral inner pipe.

12. (Withdrawn) The method of claim 6, further comprising:

spirally winding a straight pipe around a columnar core and releasing the wound pipe from the columnar core so that the released pipe may serve as the spiral inner pipe.

13. (Withdrawn) The method of claim 7, further comprising:

spirally winding a straight pipe around a columnar core and releasing the wound pipe from the columnar core so that the released pipe may serve as the spiral inner pipe.

14. (Withdrawn) The method of claim 5, further comprising:

Appln. No. Serial No. 10/781,528
Amdt. Dated 9/19/05
First Response in Appln, Reply to Office Action of 04/19/2005
Page 6 of 13

spirally winding a straight pipe around a columnar core and releasing the wound pipe from the columnar core so that the released pipe has a spiral shape with a diameter greater than a required spiral diameter; and

extending the released pipe in an axial direction so that the extended pipe may serve as the spiral inner pipe having the required spiral diameter.

15. (Withdrawn) The method of claim 6, further comprising:

spirally winding a straight pipe around a columnar core and releasing the wound pipe from the columnar core so that the released pipe has a spiral shape with a diameter greater than a required spiral diameter; and

extending the released pipe in an axial direction so that the extended pipe may serve as the spiral inner pipe having the required spiral diameter.

16. (Withdrawn) The method of claim 7, further comprising:

spirally winding a straight pipe around a columnar core and releasing the wound pipe from the columnar core so that the released pipe may have a spiral shape with a diameter greater than a required spiral diameter; and

extending the released pipe in an axial direction so that the extended pipe may serve as the spiral inner pipe having the required spiral diameter.

17. (Currently Amended) A double pipe comprising:

Appln. No. Serial No. 10/781,528
Amdt. Dated 9/19/05
First Response in Appln, Reply to Office Action of 04/19/2005
Page 7 of 13

an outer pipe for passing a first fluid therethrough; and
an inner pipe for passing a second fluid therethrough and having a wavy shape
configured to be held by an inner circumferential face of the outer pipe, the inner pipe having
substantially a same section shape in a longitudinal direction.

18. (Currently Amended) ~~The double pipe of claim 17, wherein~~ A double pipe
comprising:

an outer pipe; and
an inner pipe having a wavy shape configured to be held by an inner
circumferential face of the outer pipe,

wherein:

an amplitude of the wavy shape of the inner pipe is equal to or less than
an inner diameter of the outer pipe; and

the outer pipe has a curved part with a flattened cross-section so that
the inner pipe contacts an inner circumferential face of the curved part and is fixedly held by
the curved part is curved to hold the inner pipe at each curved part.

19. (Currently Amended) ~~The double pipe of claim 17, wherein~~ A double pipe
comprising:

an outer pipe; and

Appln. No. Serial No. 10/781,528
Amdt. Dated 9/19/05
First Response in Appln, Reply to Office Action of 04/19/2005
Page 8 of 13

an inner pipe having a wavy shape configured to be held by an inner circumferential face of the outer pipe,

wherein:

an amplitude of the wavy shape of the inner pipe is equal to or less than an inner diameter of the outer pipe; and

the outer pipe is locally or wholly crushed inwardly in a diametrical direction to hold the inner pipe at each crashed part.

20. (Currently Amended) The double pipe of claim 17, wherein:

an amplitude of the wavy shape of the inner pipe is ~~beforehand~~ formed to be greater than an inner diameter of the outer pipe so that resilient restoration force of the inner pipe ~~may always work to holds~~ the inner pipe in the outer pipe.

21. (Withdrawn) A method of manufacturing a double pipe having an outer pipe and an inner pipe, comprising:

forming the inner pipe having a wavy shape with an amplitude equal to or less than an inner diameter of the outer pipe;

inserting the wavy inner pipe into the outer pipe; and

curving the outer pipe into a predetermined shape so that the inner pipe and outer pipe are fixed to each other at each curved part.

Appln. No. Serial No. 10/781,528
Arndt. Dated 9/19/05
First Response in Appln, Reply to Office Action of 04/19/2005
Page 9 of 13

22. (Withdrawn) A method of manufacturing a double pipe having an outer pipe and an inner pipe, comprising:

forming the inner pipe having a wavy shape with an amplitude equal to or less than an inner diameter of the outer pipe;

inserting the wavy inner pipe into the outer pipe; and

locally or wholly deforming the outer pipe inwardly to fix the outer pipe and inner pipe to each other at each deformation of the outer pipe.

23. (Withdrawn) A method of manufacturing a double pipe having an outer pipe and an inner pipe, comprising:

forming the inner pipe having a wavy shape with an amplitude greater than an inner diameter of the outer pipe;

inserting the inner pipe into the outer pipe while exerting a force on the inner pipe to reduce the amplitude of the wavy shape of the inner pipe to be less than the inner diameter of the outer pipe; and

stopping the exertion of the force so that a resilient restoring force of the inner pipe fixes the outer pipe and inner pipe to each other.